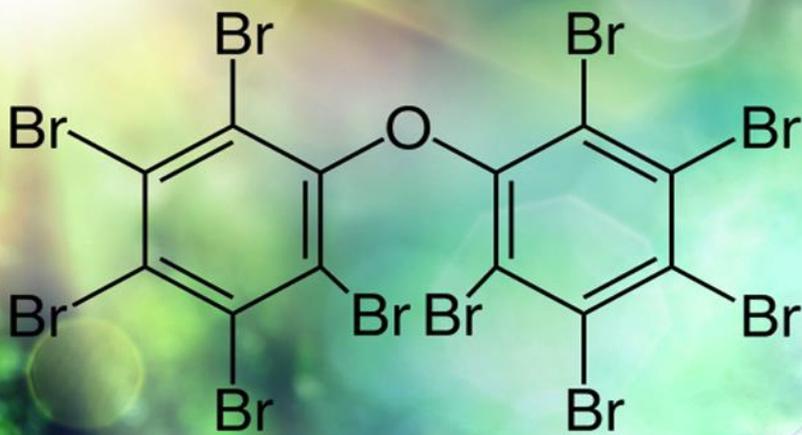


Testing of Contaminated Toner Cartridges Continues to Make Waves in Europe



decaBDE





HP sees elevated decaBDE levels in new-builds as one more compelling reason why customers should buy OEM cartridges.

In recent months, German industry publication Digital Imaging (www.dibranche.de) has been publishing a series of articles about new-build compatible toner cartridges being sold in Europe that contain elevated levels of a banned toxic fire retardant called decabromdiphenyl ether (decaBDE). On January 4, Digital Imaging published yet another [article](#) about the issue following the news that the European Toner and Inkjet Remanufacturers Association (ETIRA) had commissioned testing of new-build toner cartridges that found the presence of elevated levels of decaBDE.

In the wake of Digital Imaging's newest post, we reached out to various industry contacts to see what they had to say about the issue. HP sees elevated decaBDE levels in new-builds as one more compelling reason why customers should buy OEM cartridges.

Remanufacturers are looking to make hay of the issue and are trying to spread awareness so that authorities in various European countries will take action. They see the decaBDE contamination found in new-build toner cartridges as a scandal and an opportunity—one that they hope will help them win back market share they have been losing to cheaper compatibles. New-build toner cartridge makers Aster and Print-Rite provided us with statements about their compliance with European regulations. Of all the companies we contacted, Static Control had perhaps the most interesting response. It has issued a

statement once again avowing that it has audited its cartridges and that the cartridges that it is selling in Europe no longer have elevated levels of decaBDE. And in perhaps the biggest twist we have encountered in the whole decaBDE saga to date, Static says its own testing of a variety of cartridges, including those of its competitors, has shown decaBDE is "endemic" in the aftermarket supplies industry, found in new-build cartridges, remanufactured cartridges, and components alike.

Static has not said at what levels decaBDE was found, named names, or provided any details of its testing, but what Static's testing might reveal could put a chill in the hearts of some of the remanufacturers that have been pushing the testing of new-build toner cartridges. As more companies and groups commission testing and reveal results, it will be interesting to see how broad a problem this becomes and if indeed it implicates a wide swath of Europe's aftermarket toner cartridge industry beyond just new-builds or if the problem mainly lies with new compatible toner cartridges.

What's the Scoop on DecaBDE?

What is decaBDE? It is a flame retardant that has been used in plastics and synthetic fibers and carpets. Its use in toner cartridges stems from its use in recycled plastic for cartridge casings that can stand up to the high heat involved in the fusing process.

Under the directive, levels of polybrominated diphenyl ethers must be lower than 1,000 milligrams per kilogram (mg/kg).

The problem is decaBDE is considered to be a persistent, bioaccumulative, and toxic substance. Because it builds up in the environment and may adversely affect the well-being of humans and animals, the manufacture and use of decaBDE is restricted in some parts of the world.

In Europe, which is where the testing of new-build toner cartridges is taking place, the European Union (EU) Restriction of Hazardous Substances (RoHS) first called for decaBDE to be phased out of electrical and electronic equipment by 2006. After a period of exemptions and some litigation, it was officially banned in such products [starting July 1, 2008](#). In an [RoHS directive](#) from June 2011, polybrominated diphenyl ethers are on the list of banned substances. Under the directive, levels of polybrominated diphenyl ethers must be lower than 1,000 milligrams per kilogram (mg/kg).

Then, in February 2017, the EU stepped restrictions up further when it published a restriction on decaBDE use as part of an amended annex XVII to its Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) regulation. Under this [regulation](#), slated to take effect March 2, 2019, decaBDE levels can be no higher than 0.1 percent (1,000 mg/kg) by weight. The REACH regulation notes, "The proposed restriction should not apply to electrical and electronic equipment within the scope of Directive 2011/65/EU of the European Parliament and of the Council [here, the EU is referring to the RoHS directive noted above], as the placing on the market of such equipment containing polybrominated diphenyl ethers ('PBDE') in a concentration above 0.1 % by weight is already regulated by that Directive."

According to Digital Imaging, because the RoHS directive applies to electrical

and electronic equipment, it would cover toner cartridges, as long as they have chips. Thus, Digital Imaging asserts that levels of decaBDE higher than 1,000 mg/kg have been banned in toner cartridges in the EU since 2008.

Daniel Orth, managing director of Tonerdumping, one of the companies whose cartridges were found to have elevated levels of decaBDE, has a different point of view. He argues that decaBDE will be banned in toner cartridges once the REACH directive on decaBDE goes into effect in March 2019 but says that toner cartridges are not necessarily covered under previous directives. He tells us:

It is still not clear if there are EU regulations broken. DecaBDE-plastic is in general forbidden from 2nd March 2019 on. Before it is only forbidden for electronic products. Mr. Ortner [author of the Digital Imaging article] wrote that toner cartridges are covered by a regulation from 2008, because he thinks that toners is an electronic product regarding the German electronic waste law. But by definition there are three types of products: electronic products, non-electronic products, and products where you can replace the electronic part. The third product is only covered by RoHS regulations when it is not possible to remove the chip from the cartridge. But every remanufacturer will confirm that it is possible to remove the chip, because remanufacturers are replacing chips on cartridges every day.

And here you find the German ElektroG (electronic waste law):



TÜV Rheinland's headquarters

https://www.elektrogesetz.de/wp-content/uploads/ElektroG_20151020.pdf

On page 21 you find a list of products which are defined as electronic waste. Printers are mentioned, but toners are not.

Volker Kappius, managing director of Delacamp and spokesperson for German cartridge remanufacturing industry network DKWU, however, disagrees. He says he has confirmation from German authorities that chipped printer cartridges are subject to RoHS and the Waste Electrical and Electronic Equipment (WEE) Directive and that decaBDE has been “banned in all electronic equipment including cartridges since 2008.”

Mr. Kappius directed us to documentation that supports his point of view. He notes that a [FAQ in the WEE directive](#) (see page 8) indicates that printer cartridges fall under the scope of the directive as long as they “contain electrical parts and are dependent on electric currents or electromagnetic fields in order to function properly.” The FAQ notes that cartridges consisting of just ink and a container would not fall under the scope of the directive. Says Mr. Kappius, “A laser printer all-in-one cartridge is always dependent on an electric current. Even more so if it is chipped.”

We also found a pertinent [FAQ on the RoHS directive](#) that states, “Only consumables with an equipment constituent meeting the now more specific definition of EEE in Article 3(1) and 3(2) such as printer cartridges are EEE and in the scope of RoHS 2.”

Mr. Kappius added that in his view even though the new regulations on decaBDE under REACH are not slated to take effect until March 2019, the contaminated new-build toner cartridges still infringe on REACH regulations. He explains, “Under

REACH end users have the right to receive and it is the duty of the supplier and importer of articles to communicate information on [Substances of Very High Concern \(SVHC\)](#) in their articles as defined by Article 33 of the [REACH Regulation](#): every supplier within the supply chain has to provide, free of charge, the recipient of an article with information on the presence of every SVHC contained in this article (> 0.1%, w/w) together with sufficient information on the safe use of the article. The duty to inform about SVHC applies to articles. An article is an object which during production is given a special shape, surface, or design which determines its function to a greater degree than does its chemical composition. Consequently, new-build cartridges are articles.”

We wrote to the European Union seeking a definitive answer and clarity on rules regarding decaBDE in toner cartridges, but unfortunately their only response was to send a link to the European Chemicals Agency’s dedicated website (www.echa.europa.eu/support).

Who Found What?

The latest Digital Imaging article builds upon what was revealed in the magazine’s previous coverage, including its initial September 2018 article about the topic (see “[German Magazine Says Static Control Marketed Contaminated Compatibles](#)”) and a December 2018 report following ETIRA’s announcement about testing it commissioned (see “[ETIRA-Commissioned Tests Find More Contaminated New-Build Toner Cartridges](#)”).

We exchanged emails with the author of Digital Imaging’s coverage of this topic, Dr. Hubert Ortner, who says TÜV Rheinland has conducted testing of ten new-build toner cartridge brands/models sold in Europe (except for one model,

which was sold in Russia), and nine of these tests showed elevated decaBDE levels. The results of those tests are summarized in the table below.

One new development that had not been revealed in Digital Imaging's prior articles about the decaBDE issue was that a cartridge made by Aster tested positive for elevated decaBDE levels. Digital Imaging's January 4 article says this was actually the first new-build toner cartridge to be submitted for testing by TÜV Rheinland, all the way back in June. Digital Imaging says it kept the name of the cartridge manufacturer "under lock

and key until now" because "no HP cartridge was analyzed as a reference for this test and the cartridge was not intended for the European market."

Digital Imaging has now, however, decided to reveal the name of the manufacturer and cartridge model "because the analyses by TÜV Rheinland/LGA are trustworthy even without negative control." Digital Imaging notes that this cartridge was not intended for sale in Germany but only in Eastern Europe and so may not be "objectionable ... from a formal legal point of view."

Digital Imaging says the source for much

TÜV Rheinland Testing That Has Revealed Elevated DecaBDE Levels in New-Build Toner Cartridges					
Seller	Where Sold (if Known)	Compatible with OEM Cartridge Model	Who Commissioned Testing	decaBDE Levels	Approximate Date Testing Was Released
Aster	Moscow	HP 18A	unknown	5,600 mg/kg	June 2018
Static Control Components	EU	HP 17A	DKWU	14,000 mg/kg	September 2018
Static Control Components	EU	HP 26X	DKWU	5,800 mg/kg	September 2018
Tonerdumping, which purchased the cartridge from a third-party, which purchased it from Static Control Components	EU	HP 412X	DKWU	14,000 mg/kg	November 2018
Bubprint brand, sold by Druckerpatronen Express of Germany	Amazon in Europe	HP 17A	ETIRA	range of 2,000 mg/kg to 17,000 mg/kg	December 2018
Prestige Print brand sold by J&H Greentech and Trading Ltd. of the UK	Amazon in Europe	HP 17A	ETIRA	range of 2,000 mg/kg to 17,000 mg/kg	December 2018
Koala brand sold by Lucky Suppliers Handels GmbH of Germany	Amazon in Europe	HP 26X	ETIRA	range of 2,000 mg/kg to 17,000 mg/kg	December 2018
Yellow Yeti brand sold by Simple Printing Ltd. of the UK	Amazon in Europe	HP 26X	ETIRA	range of 2,000 mg/kg to 17,000 mg/kg	December 2018
Source: Actionable Intelligence, based on information provided by Digital Imaging					



Andy Binder, vice president and general manager of office supplies solutions for HP Inc., provided us with the following statement:

The results of the tests commissioned by ETIRA are quite concerning. HP already restricted DecaBDE in its General Specification for the Environment in 1998. Usage of DecaBDE in electrical and electronic equipment was banned in the EU in 2008 because of hazards to human health and the environment. If the results reported by ETIRA are true, this seems to indicate a systematic issue from a human health and environmental perspective. This problem is yet another good reason to rely on and print with original OEM cartridges, such as HP original toner cartridges, which are produced according to stringent quality, compliance, and substance controls standards.

It should be noted that in its testing of various new-built toner cartridges TÜV Rheinland also tested the comparable HP toner cartridge models as a point of comparison. In its initial article on the decaBDE issue, Digital Imaging said that the HP toner cartridges tested had less than 5 mg/kg decaBDE, well under the 1,000 mg/kg limit.

Tonerdumping Response

Shortly after last month's Digital Imaging report indicated TÜV Rheinland tested a Tonerdumping cartridge and found a decaBDE value of 14,000 mg/kg, Tonerdumping's Mr. Orth provided us with a statement indicating that Tonerdumping is taking the issue seriously and is working with its suppliers

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of the contaminated plastic is likely [Huiwei Corporation](#), a Zhuhai-based manufacturer of new-built empty toner cartridges. The article quoted Mr. Kappius as saying Huiwei makes about 60 to 80 percent of all the plastic cartridge casings for new-built toner cartridges made in China.

Interestingly, Digital Imaging says that more testing of new-built toner cartridges is planned. ETIRA supposedly will commission further test results in January, including cartridges made by China's big toner cartridge manufacturers such as Aster, Ninestar, and Print-Rite. Digital Imaging adds that wta Carsten Weser GmbH and another unnamed German remanufacturer are also commissioning testing in order to use the results as sales tools. And, as noted above and discussed in more detail below, Static Control indicates it will be releasing more information about its test results.

HP Comments

All the new-built cartridge models that have had elevated decaBDE levels so far have been designed to replace HP original toner cartridges. Thus, we reached out to HP to learn what its take might be on the ongoing testing in Europe.


TONERDUMPING

(see [“Tonerdumping Responds to DecaBDE Issue”](#)).

The latest Digital Imaging article says it was an HP 412X toner cartridge made by Static Control that had elevated levels of the flame retardant. Mr. Orth tells us he identified the manufacturer from photos of the cartridge that Digital Imaging sent to him, but he adds that Tonerdumping did not purchase the cartridge from Static Control directly but from two different remanufacturer companies, one of which said the cartridge was from Static Control.

Mr. Orth emphasizes that Tonerdumping is currently working with Ninestar to establish the G&G brand in Germany, and that part of this effort includes quality control and following EU regulations. DecaBDE plastic will be forbidden after March 2019, he says, but his suppliers including “Ninestar and Aster are well prepared for this.” He says he was misquoted by Digital Imaging and never said that the reason why these manufacturers are changing their plastic had anything to do with Digital Imaging’s report. “The truth,” he says, “is that our major toner cartridge suppliers changed the plastic a few months ago and have taken steps to ensure that no plastic part will exceed the prescribed limits in the future.” Mr. Orth adds, “As the most important measure, our largest supplier has indicated and demonstrated that the change to unpolluted plastic took place months ago. We have already received RoHs and REACH tests from the first toner cartridges that can prove this. These tests were made by an independent organization and not by the manufacturers themselves.”

Aster Statement

We asked Aster if it could comment on the decaBDE issue in light of Digital Imaging’s report that one of its toner cartridges was found to have elevated levels of decaBDE. Similar to what Mr. Orth said, Aster explains it has been working to meet the REACH regulation. The company says third-party testing shows its new product samples meet this standard.



The firm’s statement reads in its entirety:

On 10 February 2017, the European Union published Regulation (EU) 2017/227 to include decaBDE stating that “the substance decaBDE shall be subject to a limit of 0,1 % (by weight) for its use in the production of or placing the market in another substance as a constituent, a mixture, or an article or any part thereof after 2 March 2019.”

Since that time, and as a certified REACH Compliant Company, Aster Graphics has worked both internally and with its raw material suppliers to meet this standard. Very recently, Aster Graphics has received positive third-party test results confirming that new product samples have met the stringent 0,1 % (by weight) standard. Aster Graphics will be supplying these test results to its customers and all future shipments of products will utilize

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the new plastic formulations.

In our work to meet this standard, Aster determined that the decaBDE levels in our products were coming from the recycled plastic content in raw materials. It is well known that this new standard has been challenging for the electrical and electronic equipment (WEEE) recycling industry in Europe and its future, as noted in the Position of the European Recycling Industries' Confederation (EuRIC), https://www.mgg-recycling.com/wp-content/uploads/EuRIC_Recast_POP-Regulation_Position_June2018.pdf.

Aster Graphics has always maintained high environmental and social sustainability standards. We are pleased to announce that in December 2018 we received the prestigious Nordic Swan license approval, Nordic Ecolabel license No. 3008 0052 for our line of Remanufactured OEM Toner Cartridges. For many years Aster Graphics has also held the following certifications: CE, RoHS, ISO 14001.

So, as Digital Imaging suggested, it seems that Aster's source for the recycled plastic in cartridge casings was the problem. Aster did not directly address whether any of its older cartridges had higher decaBDE levels and may have violated any European regulations—its emphasis was on the fact that it is now in compliance with European laws.

The position statement Aster points to from EuRIC asserts that the EU's ever

more stringent regulations on decaBDE could result in less use of remanufactured plastics in products. The group warns that if regulations are lowered still further to 10 mg/kg, which has been proposed, "Recycling plastics from WEEE or ELVs in Europe will come to an end: producing recycled plastics containing less than 10 mg/kg of decaBDE is not technically feasible at industrial scale, even for the best performing operators with whom EuRIC is working. This would effectively halt companies which invested heavily in the development of innovative sorting and treatment processes from recycling plastics, while bringing no added benefit to the protection of human health or the environment."

Print-Rite Statement

Print-Rite was not implicated in any of Digital Imaging's articles about decaBDE or in the ETIRA announcement. However, because the company is a major maker of new-build toner cartridges, we thought we'd reach out to Print-Rite to see what the company could say about decaBDE levels in its cartridges and whether Print-Rite was at all worried that its cartridges are on ETIRA's list for future testing.



Steve Weedon, director and corporate strategist for Print-Rite, was nonplussed about the prospect of testing. He stated, "We comply to REACH and RoHS standards and have test lab results report[s] from [a] third-party European test house as well as from a Chinese certified testing house. Print-Rite is also



certified under qc080000 Standards, which means we have accredited systems to monitor and put into place processes that ensure we are certified and our products comply to REACH and RoHs standards.”

Static’s Bombshell

On December 21, Static issued a statement on what Digital Imaging had reported about its cartridges containing elevated levels of decaBDE. The firm said only “a small number” of cartridges were affected and that the majority of its cartridges “were in compliance with all applicable environmental regulations.” Static laid the blame for the contaminated plastic on a “rogue raw material supplier” and that it has “acted immediately to remedy this issue in the affected cartridge lines” (see [“Static Control Says It Has Resolved Contaminated Plastic Issue”](#)).

We reached out to both Static Control and Ninestar, which is Static’s parent company and manufactures its new-build toner cartridges, following Digital Imaging’s January 4 report to see if they could provide more information on what their testing of their cartridges showed, how much of their product line was affected, and similar questions. Ninestar did not comment. While we did not receive a reply to our questions from Static Control, about a week after we sent our questions, the company issued a new public statement on the decaBDE

issue. And it contains a potential bombshell.

Static’s January 11 statement reads:

In December, Static Control responded to allegations of an unauthorized substance being in a limited number of cartridges based on an article in the German publication Digital Imaging.

Static Control investigated internally and sent cartridges and components used for remanufacturing cartridges to LGA, a third-party, independent laboratory based in Germany for immediate testing. The investigation revealed the majority of Static Control cartridges and components complied with all applicable environmental regulations but a small number of cartridges contained a fire-retardant chemical that is restricted by RoHS.

LGA also discovered that some of the Static Control cartridge models previously alleged in the original article to contain the chemical were actually found to comply with the regulations, contradicting the report supplied. The inconsistent test results further fueled Static Control’s desire to investigate this issue thoroughly. The issue relates to using recycled plastics. The chemical is specifically used to aid the use of recycled plastics.

Static Control began an audit of all plastics in our product line, both for cartridges and components to ensure either new plastics were used or the

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recycled product was free of the flame-retardant chemical.

In addition, we tested offerings from a broad selection of the industry with both cartridges and components, including some of our competitors. The fire-retardant chemical was found in the vast majority of the industry samples tested and in all of the competitor cartridges and components submitted to our laboratory. These results indicate that the fire retardant's presence is endemic in the industry and affects compatible cartridges, remanufactured cartridges, and components.

We have discussed the implications of the testing with ETIRA and fully expect to provide more information in the coming weeks.

Since our December announcement, Static Control's European cartridge offering has been free of the fire-retardant chemical. Since our audit, we can confirm that all Static Control components and cartridges sold at this time in Europe comply with RoHS and REACH requirements.

As always, Static Control remains diligent in complying with all applicable environmental regulations around the world and will continue to take all necessary steps to remain RoHS and REACH compliant.

Static's aim here appears to be twofold. It is once again trying to reassure customers that it acted immediately when it learned of the elevated decaBDE levels in a pair of its cartridge models, commissioned its own testing with LGA to determine the

scope of the problem, brought its product line in compliance with RoHS and REACH regulations, and has been selling only products that comply with regulations on levels of decaBDE since its December 21 announcement. But the firm is also calling into question whether elevated decaBDE levels are only a problem with new-build toner cartridges. If, as Static Control claims, elevated levels of decaBDE are rampant throughout the industry, including in new-builds, remans, and components, the problem is far bigger than it seemed last fall. And, as noted above, Static is far from the only party commissioning testing.

Who Is in the Catbird Seat?

Originally, we thought that the decaBDE issue, driven as it was largely by remanufacturing industry groups, had the potential to help remanufacturers in Europe win back some share from new-build makers, especially in the short term. But, we also thought this issue was too big for new-build makers to ignore and that the bigger companies in the industry would work quickly to bring their lines into compliance.

Now, however, with Static indicating it is a problem that affects the aftermarket as a whole, it appears that more aftermarket supplies firms than originally thought may be scrambling to bring their lines into compliance. It poses a real dilemma for resellers in choosing what to offer. And it is alarming to customers who are only now learning that their aftermarket toner cartridges may contain elevated levels of a toxic substance.

While we are eager to see what happens next with all the testing, we are equally interested to see what happens in regard to enforcement of European environmental regulations. As far as we know, authorities have not acted on the decaBDE issue. Enforcement is the responsibility of the EU's various



As the decaBDE scandal grows, the big question is who will be left perched in the catbird seat?

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member states and therefore varies from country to country. It is unclear to us what might make authorities act upon the decaBDE issue and what that enforcement might look like in practice. However, we noticed that Chemical Inspection and Regulation Service (CIRS) has published a [table](#) of administrative and criminal penalties for violating provisions of the REACH regulation. In Germany, for example, administrative penalties include fines of up to €100,000. Criminal penalties, however, in Germany for REACH violations are stiffer and include fines of up to €1 million and up to five years of prison.

As the issue of decaBDE in aftermarket toner cartridges continues to implicate more companies and industry players point fingers at each other, there is a real chance that there will be no winners in the ongoing battle between new-build cartridges makers and remanufacturers, only losers, and that the reputation of the aftermarket industry as a whole in Europe will be damaged. That leaves OEMs perched in the catbird seat. If in the end it appears that only new-build toner cartridges had elevated decaBDE

levels, that is good news for remanufacturers, but it is also a good message for OEMs and one they will leverage. But, if, as Static suggests, a broader swath of the aftermarket industry is implicated, including compatible cartridge makers, remanufacturers, and component makers alike, expect OEMs to take that message and run with it.

There will always be customers who prefer aftermarket cartridges due to their lower price points, and while by and large that won't change as a result of the decaBDE issue, some customers could be turned off from the category. Instead of remanufacturers scooping up some share from new-build makers, it is possible we may see OEMs take a little bit of share away from both.

[Editor's note: Actionable Intelligence has not played any role in submitting any company's toner cartridges for testing. Our aim is to report on details of testing as they become available in industry publications and company press releases. Our writing on the topic appears exclusively on www.Action-Intell.com and not in any other industry publications.]



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